

use. All the major functions for computing, communications, and conferencing are made available to user in this desktop arrangement. The base unit 6A, which is similar to the main unit of Fig. 1 and 2, is embodied as a somewhat smaller wedge shape enclosure, which does not take up much desk space and provides an inclined position for pen input.. The telephone base unit 6B and keyboard unit 7 are shown here as separate units, so that they can be pushed aside to make room on the desktop. Electrical cables 58 and 9 connect the handset and keyboard to the base unit 6A where most of the computer and electronic components are located. The stylus/pen 22 is connected to the computer in the base unit via an electrical cable 23.

The display panel assembly 2 is physically connected to the base unit 6A via a universal hinge arrangement 4 and an actuator assist means 8. This connection is shown in an exploded view in the figure. The universal hinge means may be embodied in many ways, such as a ball and socket joint arrangement. Thus, the display panel assembly 2 with its display screen 3, is position adjustable in a multiplicity of orientations. A Cartesian coordinate system diagram, defining the axes for translations and rotations, is shown in the figure. The panel can be rotated in Inclination angle I, Azimuth angle D, and Roll angle R. Further position adjustment means are added, to provide elevation adjustment along axis y, as shown in double arrow B.

The display panel assembly 2 may be electrically connected to the electronics in the base unit by running a cable through the hinge pin 5 and through the actuator assist means 8 attached to the hinge pin. Sufficient slack in the cable must be provided for the full height of the adjustment range. A slack take-up means should be provided, so that when the panel is in its lower elevation positions, the cable does not bind. The vertical force of actuator assist means should be roughly equal to the weight of the display panel assembly 2. The actuator assist means 8 could be embodied by several alternative devices, including an air spring, a mechanical spring, pneumatic, hydraulic, or electromechanical actuator means. One or more actuators could be included. A means for locking and unlocking the actuator position should be provided within the assist means 4. Such actuators and locking mechanisms are well known to those in the art.

Even though flat panel display assemblies typically weigh only a few ounces, there are several reasons why an actuator assist means may be desirable. If an actuator is not implemented, and the user desires to raise the panel vertically by hand, the user would have to grab one edge of the panel and pull up. If the base unit is not secured to the table or it is not sufficiently heavy, the entire unit may lift off the table. The user would have to place one hand on the base unit and the other on the display panel and pull. Both of the above user actions are undesirable. Using two hands for a simple position adjustment, takes more time to accomplish, and the user may lose his/her's concentration during a computing task. Making

the base unit heavy enough so that its weight is larger than the force applied by one's hand is also undesirable. Therefore, a telescoping actuator means 8 should be embodied with a force roughly equivalent to the weight of the display assembly 2, so that the user can easily adjust the position of the display panel by hand. The actuator means may include a locking and unlocking means for temporarily holding the display assembly in the desired position.

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An alternate embodiment is shown in Figure 6A and 6B, showing front views of a desktop unit with a universal ball and socket type support and hinge means 4 attached to the display panel assembly 2, as well as other components. The support and hinge means consist of an L-shaped support member 4C, such that the display panel, when supported near the front of the base unit 6A, can be rotated about the z-axis (shown in Fig. 1<sup>5</sup>) and miss the front edge of the base. The L-shaped member 4C, as shown in Fig. 6A and 6B, is foreshortened (i.e., one side of the L is pointing out of the paper). Figure 6B shows a front view of the display panel, where the panel is rotated 90 degrees to the typical portrait display orientation. The locking and unlocking part 4A can be a hand knob for applying a force to a hinge means. In this embodiment, the locking knob is facing forward, toward the front of the desktop unit. Other locking/unlocking knob positions are possible. A support post 5A is fixed to the actuator assist means 8 at one end and is attached to the support and hinge means 4 at the other. The assist actuator means 8 may consist of several telescoping arm and post members, in order to provide for greater elevation travel. The actuator means should be capable of collapsing into a unit with relatively small height dimension. This latter feature is important because the height dimension of front portion base unit is relatively small. As above, the support post can be hollow to allow the electrical cable to be routed through it. An advantage of the Fig. 6A and 6B embodiment is that it provides for both landscape and portrait screen orientations in the same desktop unit, which the user can easily change by hand.

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The embodiments of Fig. 5 and Fig. 6 result in a relatively integrated desktop computer and telecommunication system, designed to be used by a person at his/her desk. The system is designed to replace the user's existing telephone and desktop computer, with a general purpose integrated telephony and computing system. A unique aspect of this invention is that the wedge shaped base unit 6A, telephone handset enclosure 6B and the keyboard unit 9 are made to be small separate units, but the display panel assembly 2 can be quite large. The telephone handset and enclosure combination can be slide under the display panel assembly, to save desktop space. This embodiment allows the user to move these separate units out of the way when not in use, and pulled into position when required. ---

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